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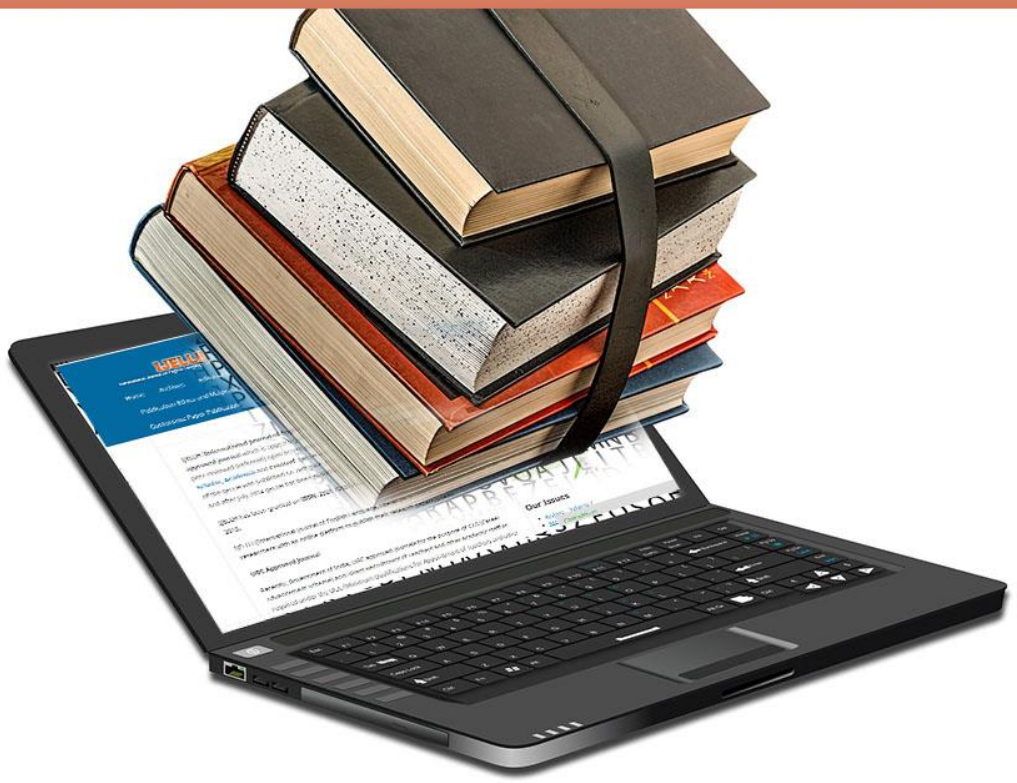

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Development of English Language Skills Through scientific writings

Abstract

This paper is an attempt to focus on development of English language through scientific writings. The use of hedging, its problems and solutions are highlighted. Students, scholars, teachers and scientists can enhance their language skills through scientific writings. Further the article emphasizes on the Elements of Style for Writing Scientific Journal Articles that includes Basic rules of manuscript language, Classic errors to avoid, remembering your reader, Cross-references and figure captions and Writing & rewriting.

Hedging is the expression and option in language use and it is vital to scientific writing where statements are hardly ever made without subjective assessments of truth: the hedges like (suspect, could, might, Possibly, could, seems possible, may, if) specify interpretations and allow writers to convey their attitude to the truth of the statements they accompany, thereby presenting unverified claims with care and softening categorical assertions. These are essential functions in an environment where the need to evaluate evidence and state the certainty of judgments can contribute to gaining the acceptance of knowledge claims. Hedging is a considerable means by which the professional scientist confirms his or her membership of the scientific community. Its study can therefore make an significant

contribution to our understanding of the practices of practical reasoning and persuasion in scientific writings.

Problems and solutions

Clearly the ability to hedge statements suitably is essential to effective communication and therefore to academic success but the acquisition of unfamiliar cultural and linguistic rules allows no direct solutions. Any response must involve three main areas.

Firstly, science faculties ought to acknowledge the significance that cultural differences have on the aptitude of students to converse effectively. Until recently university departments largely unnoticed differences between students and subject cultures, because of the conventional view which saw science as a self-governing culture expressed by a single discourse.

Science faculties have to recognise that students may have an inadequate awareness of the variations in the rules of language use. Students can only enrich suitable discourse approach if they comprehend the needs of academic audiences, but studies show that classroom writing contexts are often artificial with little purpose other than to display knowledge.

Most science undergraduates for example only write reviews, lab reports and project proposals and have less experience in argumentation. There is a dire need for subject lectures to provide written work which varies both purpose and audience. Secondly, English for specific purposes (ESP) teachers also need to move beyond a view that scientific writing is simply detached and factual and the idea that hedges are merely conventions of an academic culture. Unfortunately few published ESP courses discuss interpersonal aspects of writing and it is still rare for students to be taught explicitly about hedging. Once again, we ought to focus students on audience needs, particularly the degree of precision, caution and deference

expected, by encouraging authentic writing tasks and the evaluation and manipulation of model texts.

Finally, we must look towards applied linguistics for analyses of hedges and their function in genre construction. A major reason why students do not get methodical training in the use of hedges is because we lack pragmatic information about the rules of various aspects of language. Corpus studies, on the other hand, have either included a heterogeneous range of registers, or have centered on descriptions of spoken discourse or modal verbs.

Elements of Style for Writing Scientific Journal Articles

Manuscript language should be Accurate, Concise, Clear and Objective

Check spelling errors by using a spellchecker in English. In addition, other common

language errors involve basic rules of tenses, sentences and paragraphs.

Elements of Style for Writing Scientific Journal Articles

1. Basic rules of manuscript language

- Tenses
- Grammar
- Sentences
- Paragraphs

Tenses

Take care to use the appropriate tenses when describing your work and findings. Being consistent and acceptable in your use of tenses makes your paper easier to comprehend.

Present tense:

Use the present tense for known facts and hypotheses, for example, "the normal range of fasting blood sugar is 70-110 mg/dl"

Past tense:

Use the past tense for describing experiments that have been conducted and the results of these experiments, for example, The normal range of random blood sugar was < 140 mg/dl

Avoid shifting tenses within a unit of text: paragraph, sub-section or section.

Grammar

Use the active voice to maintain brevity. The passive voice can be used in the Methods section of a paper but otherwise, the active voice will usually abridge sentences and make them more dynamic and attention-grabbing for the reader. Use the active phrase "we found that..." freely, which is a quick signal to the reader that you are describing one of your results. This expression is also much more concise and to the point than writing in the passive voice, as in, for example, "it has been found that there had been..."Avoid abbreviations and acronyms. Avoid contractions such as "it's", "isn't", or "weren't" which are not often used in professional writing.

- Avoid abbreviations/acronyms except for very well-known ones.
- Avoid acronyms as replacement for citations.
- Avoid acronyms in the abstract and conclusion.

Eliminate redundant words or phrases.

Other Elements of Style for Writing Scientific Journal Articles include

- due to the fact that ➞ because or since
- immediately apparent ➞ apparent

- in the case that ➞ in case
- and also ➞ and
- in order to determine ➞ to determine
- to try and determine ➞ to determine

Double-check unfamiliar words or phrases.

Sentences

To write a successful manuscript, first be aware of the sentence structure you use. Write direct and short sentences. The average length of sentences in scientific writing is only about 12-17 words. Include only one piece of information per sentence. Sentences should be construced in short, factual bursts. Long and complicated sentences tend to puzzle readers. Avoid building multiple statements in one sentence. Convey only a single idea per sentence. Link sentences together within a paragraph to provide a clear story-line. Keep related words together. Closely place the subject and verb to allow the reader to understand what the subject is doing. Pay attention to the order in which you write a sentence.

The "stress position" within a sentence contains new information to be stressed. The “topical position" contains "old" information leading up to the point of emphasis. The topical position comes before the stress position.

Avoid: "This participant performed well during 2017 than any period found in the observational database, based on our analysis of self appraisal reports."

Write: "Based on our analysis of self appraisal reports, this participant performed well during 2017 than any period found in the observational database."

Put statements in a positive form.

- Positive: "He usually came early."
- Negative: "He is very often on time."

Paragraphs

Have one paragraph for each different topic. Begin a paragraph with a topic sentence, and end in conformity with the beginning. Avoid a succession of loose sentences. Parallel structures are simpler to analyze as a reader. Maintain consistent tenses within each paragraph. Provide a logical transition from one paragraph to another to make a clear flow, thus guiding the reader from one topic to another. Paragraphs are correspondingly constructed to sentences, bringing the reader from the "familiar" at the start to new ideas towards the end.

2. Classic errors to avoid

Avoid using "this" unqualified.

Avoid: "We found this to be the most important facet of the liver function tests."

Write: "We found this feature of the blood to be the most important facet of the liver function tests."

- What does "this" refer to? If the reader must guess, then the guess could be wrong. Even when it is "obvious" what "this", "that", "these", or "those" refer to the author serves the reader well by clearly qualifying. Avoid too many successive prepositional phrases.
- Avoid: "We ran a model imitation for research into the evolution of the blood cells."
- Write: "We ran a model simulation to conduct research into blood cells evolution."
- Run-on prepositional phrases are awkward to read. They can rapidly lead to reader fatigue. Avoid subjective or redundant words or phrases that will date the paper.

- Avoid subjective or judgmental adjectives.
- "Simple" has meaning to the reader only when the authors explain the opposite "complex" or "realistic" or "complete".
- Readers should not be asked to read the mind of the authors, or to share the authors' opinion.
- Avoid expressions of belief.
- Avoid: "We believe this model result to be true."
- Write: "We show through our analysis that this model result is consistent with the empirical evidence."
- Communication of science is not about conveying belief.
- Rather, it is about logically developing lines of evidence that lead one to a hypothesis, theory, or conclusion based on the evidence.
- Avoid loose statements and back to back adverbs.

3. Always remember your reader

The abstract provides a concise summary of the key aims and results if it is not clear and interesting, readers often will read no further. The introduction should lay the ground-work for why the paper is worth reading, and describe where the work fits within the existing literature. Introduce the novel elements of the paper in the introduction, thus providing motivation for the reader to go through the main text. Do not over-burden the reader by making the introduction lengthy.

Get to the key parts of the paper sooner rather than later. Readers need to know what they have read and why it was considerable. Remind the reader why this paper was worth reading and publishing. Concluding sections also provide a venue to set the stage for future research directions.

4. Cross-references and figure captions

Cross-reference equations, figures, and sections both by their number and by their name. Asking the reader to page back in the text intensifies reader fatigue. Put your head in the reader's head to determine when it is useful to provide "hand-Holding" in a discussion or a derivation, whereby you identify useful cross-referencing. Figures can be the most important part of a paper. Produce clear and high quality figures along with meticulous captions. Avoid excessive numbers of figures: sensibly select those figures that clearly support the presentation.

Allow the reader to digest a figure's main points without reading the text. Produce high quality figures, even on the first submission! When available, embed figures within main text of the submitted manuscript to avoid reviewers needing to page back/forth, which in turn breaks the reading.

5. Writing & rewriting

This involves playing the peer-review "game" (Extensive fine-tuning). Identify the beginning, the middle, and the end? What is the "take home message" or "iconic figure" of your paper? Be aware of each word forming a sentence; each sentence forming a paragraph, each paragraph forming a section...Edit ➞ Read ➞ Edit ➞ Read ➞ Edit ➞ etc. Consider the manuscript from a different perspective between each Edit ➞ Read cycle: e.g., read in a different location; read it as an interested and smart non-expert. Patience will reduce time with reviewers/editors, and will enhance the paper's readability and impact. Solicit "friendly" reviewer comments from colleagues, and be sure co-authors have read the manuscript. Ask readers to comment on the "style" of the manuscript as well as the substance. Writing rules

can be selectively broken without sacrificing clarity. But it is important to know and to respect the rules so to understand when they are usefully broken. Honestly deal with mistakes.

There are times when the reviewer (or the author!) identifies a significant problem/mistake during the review process. Mistakes are embarrassing. But they are far more embarrassing if published! So be thankful the mistake was found during review. If the basis for the paper is undermined by a mistake, then do not try to justify publishing. There may be another path towards a publishable story. Avoid publishing an incomplete or half-baked story. Readers will be reticent to read your next paper. Quality over quantity is the ideal.

And finally: Do not give up if you believe in your work. Reviewers are generally not as knowledgeable on the subject of the manuscript as the author. Some influential papers that break new scientific ground may be rejected merely because reviewers do not appreciate the results. Be patient and persistent. Nonetheless, reviewer comments are almost always useful, even if they are wrong! Some critical or wrong reviewer comments result from poor writing that leads to reviewer misunderstanding and reviewer frustration.

Rethink your writing. Let comments sit, especially negative or harsh comments. A poorly written rebuttal can lead to needless (and sometimes emotional) correspondence with the editor and reviewer. When it comes to "'writing," scientists use specific scientific writing styles to communicate their findings in a way that generalizes across many disciplines. Scientific writing, like all formal writing, requires a firm foundation in English sentence construction, usage, and punctuation as well.

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